CHAPTER TWO: WATERSHED ISSUES, OPPORTUNITIES, GOALS & OBJECTIVES

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COMMON ACRONYMS/ABBREVIATIONS USED IN CHAPTER 1

APMP – Aquatic Plant Management Plan

BMP – Best Management Practices

CLC – College of Lake County

DPR – Des Plaines River

DRWW – Des Plaines River Watershed Workgroup

HOA – Homeowners Association

Illinois EPA – Illinois Environmental Protection Agency

PAH – Polycyclic Aromatic Hydrocarbons

SMC – Lake County Stormwater Management Commission

SMU – Subwatershed Management Unit

TMDL – Total Maximum Daily Load

TSS – Total Suspended Solids
USGS – United States Geological Services
VLM - Volunteer Lake Monitoring
WI – Wisconsin
WRAPP – Wetlands Restoration and Preservation Plan

2 WATERSHED ISSUES, OPPORTUNITIES, GOALS & OBJECTIVES

2.1 WATERSHED ISSUES

One if the first tasks undertaken by the Des Plaines River Watershed Committee (watershed planning committee) was to identify and list issues and opportunities/strategies that the Des Plaines River watershed based plan should address. Issues were first identified by meeting participants at the March 17, 2016 kick-off planning meeting (see Appendix A for stakeholder meeting minutes) and voted on at the April 28, 2016 planning meeting to determine priorities. A full list of the issues/concerns of stake-holders is available in **Table 2-1**. Issues were grouped into categories by topic areas to categorize them into goal areas. All of the categories are listed below from highest concern to lowest concern (based on watershed issues and opportunity voting), based on stakeholder voting.

Table 2-1: Specific Issues/Concerns Identified by Stakeholders

# OF VOTES	WATERSHED ISSUES
Total: 61	**Goals: Water Quality**
13	1. There is a disconnect for some public works agencies between improving stormwater conveyance and the negative impacts of stormwater on lakes and streams
12	2. Phosphorus pollution
20	3. Road salt creating chloride pollution
5	4. Coal tar sealant pollutants
2	5. Lack of TMDL information - (*Wheeling drainage ditch/reach*)
8	6. Impacts of water quality on recreational opportunities (poor water quality limits recreational opportunities such as fishing)
1	7. River flooding impacts on adjacent lakes (*east side of Lake Minear, invasive species impacts)*
Total: 52	**Goal: Regional Green Infrastructure and Natural Resources**
13	8. Undesirable or invasive aquatic plants & animals
5	9. Invasive plant issues (teasel)
21	10. Not enough wetlands preserved and restored
1	11. Not resilient to climate change
3	12. Not enough volunteer efforts on rivers and adjacent forest preserve areas
9	13. Loss of old growth trees (oaks)
Total: 32	**Goal: Flood Damage Reduction**
5	14. Insufficient capacity of stormwater infrastructure for increasing growth

# OF VOTES	WATERSHED ISSUES
13	15. Damages from flooding and lack of flood control measures
13	16. Too much stormwater runoff from impervious surfaces
1	17. Need additional USGS stations
Total: 38	**Goal: Funding, Installing & Maintaining Stormwater Infrastructure (Gray and Green)**
15	18. Condition of stormwater infrastructure (pipes, detention basins, etc.), *Example: North Libertyville Estates*
5	19. Dams and dam removal
12	20. Lack of stream or river maintenance
6	21. Lake shoreline erosion
0	22. Lack of coordination for mosquito abatement and improper drainage; stagnant water as a source of mosquitos
Total: 21	**Goal: Education & Outreach**
8	23. Public does not understand the issues
2	24. Public understanding of agency roles
1	25. Lack of understanding of impacts coming from leaching septic fields
5	26. Education of general public on invasive species and the water quality impacts of native fauna
2	27. Who to Call…for questions? Where is this located?
3	28. Understanding conflicts and owner responsibilities (Social issues with fellow neighbors)
Total: 0	**Miscellaneous Category**
0	Recreational conflicts – canoeing vs. speedboats

2.2 WATERSHED OPPORTUNITIES

Following the identification of watershed issues, stakeholders provided input on what they think the watershed opportunities/strategies are. They considered what they really like about the watershed and identified these characteristics as opportunities for preserving for the future in addition to identifying opportunities for remediating issues. The opportunities identified by stakeholders are listed in **Table 2-2**.

Table 2-2: Specific Opportunities/Strategies Identified by Stakeholders

VOTES	WATERSHED OPPORTUNITIES & STRATEGIES
Total: 6	**Goal: Water Quality**
6	1. Determine pollutant contribution from wastewater treatment plants to streams
0	2. Better water quality would attract more wildlife *(more indicator species (i.e. eagles))*
Total: 47	**Goal: Regional Green Infrastructure and Natural Resources**
12	3. Expand preserved open space, trees and plants (including old growth trees), wildlife (corridors), and habitat
10	4. Plant native plants in buffers along the Des Plaines River
8	5. Manage invasive species: flora and fauna (i.e. teasels)
17	6. Restoring wetlands to a sustainable functional system
Total: 31	**Goal: Reduce Flood Damage**
13	7. Utilizing land along tributaries for storage and treatment of stormwater – (green infrastructure)
18	8. Clearing debris and restoration of natural areas – *i.e. North Libertyville Estates retention: erosion, cattails, drainage*
Total: 44	**Goal: Funding, Installing & Maintaining Stormwater Infrastructure (Gray and Green)**
5	9. Retrofitting of detention basins
14	10. Smarter management of stormwater runoff
2	11. Using permeable pavement in development and redevelopment (improving infiltration)
3	12. Create a Stream Management Program – "Adopt a Stream"
2	13. Work with nurseries to provide attractive designs for using native plants for stream buffer and bank stabilization
8	14. Need additional funding for restoration efforts
2	15. Expand stormwater infrastructure funding and technical assistance *(HOAs, etc…)*
3	16. Creating better standards for BMPs for roadways and drainage projects
2	17. Funding support for developing better regulations to control impervious surfaces
3	18. Having enough resources to implement programs/services – new ways to fund and stormwater management as utility
Total: 52	**Goal: Community & Agency Coordination**
3	19. Engage community action – stewardship and volunteering (having a bigger voice)
5	20. Better coordination and partnerships among agencies, municipalities and landowners for watershed projects *(i.e. Lincolnshire drive berm, Conservation @ Home, river management with adjacent landowners, multiple groups – bigger scope)*
6	21. Expand Lake County Forest Preserves

VOTES	WATERSHED OPPORTUNITIES & STRATEGIES
1	22. Local communities and residents have a role in water quality improvements
10	23. Having more intense modeling of the impacts of planned land uses
6	24. Better enforcement of existing regulations
0	25. Revise existing regulations and codes to create more uniformity
1	26. Provide liaison to assist with permitting processes
1	27. Identify watershed champions in each community
13	28. Coordination/consistent efforts for future and current land use (green infrastructure planning tools)
4	29. Villages adopt ordinances to manage phosphorous
2	30. Watershed involvement with Illinois EPA on Nutrient Loss Strategy
0	31. Better access to headwaters – (*Wisconsin - different ways of doing things*)
Total: 20	**Goal: Agriculture Farming Systems**
11	32. Sustainable farm practices
3	33. Expand and preserve small scale farming
6	34. Removing drain tiles to ditches upstream
Total: 55	**Goal: Education & Outreach**
29	35. Educate individual landowners on: a. maintaining stormwater management systems b. best management practices c. yard waste management d. water quality and water resources e. flood damage reduction f. phosphorus reduction (countywide ban) g. stream erosion & lakes management h. ecosystems i. more (public) postings for resident participation in programs or projects j. technical references
2	36. Educate students on flood reduction, restoration, recreational value *(i.e. Gowe Beach)*
9	37. Educate local public work departments on chloride (road salt) reduction practices
4	38. CLC or other institutions provide technical education
4	39. Use social media to educate corporations, agencies, the public, and municipalities to encourage the implementation of BMPs and participation in restoration efforts
5	40. Promote pollution prevention – (i.e. give a hoot, don't pollute)
2	41. Making public service a high school education requirement

2.3 WATERSHED VISION

The Des Plaines River Watershed stakeholders participated in an exercise to develop a vision statement for the watershed. The vision serves to focus the aim of the group. While different groups implementing the plan may have different goals and objectives, the achievement of all should fit under the overarching vision statement.

The vision statement exercise began by asking the following questions:

1. What matters to you most about where you live in the DPR watershed?
2. What positive changes would you like to see in the watershed?
3. What is your dream for our watershed community? (How would the DPR watershed look if the watershed plan is successful?)
4. Who will be involved in helping achieve the watershed vision over the next 13 years?

The large stakeholder meeting was divided into four facilitated sessions to discuss the answers/phrases to the vision statement exercise. Each facilitated session voted on their preference of vision phrases to share with the larger group. The large stakeholder meeting was then able to vote on which group's (1-4) vision statement exercise phrases should be included (or combined) into the Des Plaines River watershed vision statement.

Table 2-3: Des Plaines River Watershed Plan Stakeholder Vision Exercise

DES PLAINES RIVER WATERSHED PLAN VISION EXERCISE RESULTS				
Vote Results (%)	**What matters to you most about where you live in the DPR watershed?**	**What positive changes would you like to see in the watershed?**	**What is your dream for our watershed community? (How would the DPR watershed look if the watershed plan is successful?)**	**Who will be involved in helping achieve the watershed vision over the next 13 years?**
0%	**Group 1:** My community (restoration of pond) – debris, sediment, erosion in rivers, lakes and streams	**Group 1:** Better water quality	**Group 1:** Unpolluted water and more natural areas	**Group 1:** Individual responsibility
21%	**Group 2:** Flood control measures to limit property damage	**Group 2:** Accommodate wetland restoration to establish native vegetation and improve habitat diversity.	**Group 2:** River as a destination	**Group 2:** Government, businesses, public and private entities, and residents.
37%	**Group 3:** Protect and improve natural resources, water quality and habitat.	**Group 3:** Improved biodiversity	**Group 3:** Residents demand and value quality water resources and recreational opportunities	**Group 3:** Partnership between public and private stakeholders to improve education and planning

42%	**Group 4:** Sustainable planning and implementation for environmental health to achieve clean healthy water, preservation of regional green infrastructure, etc.	**Group 4:** Comprehensive community education and outreach to foster support for and participation in improvements/changes .	**Group 4:** Sustainable landscaping with balance between built environment (development) and natural environment. Cleaner lakes, better streams, more secure biodiversity and large sections of stream meeting aquatic life criteria	**Group 4:** Everyone

The participant responses to the exercise resulted in the following vision statement for the Des Plaines River watershed.

> ***The Des Plaines River Watershed will be a destination valued by residents, businesses and governments that join together to actively engage in education and participate in improving water quality. Stakeholders will preserve and enhance regional green infrastructure, resulting in cleaner streams and lakes, better plant and animal biodiversity and reduced flood damage while balancing a sustainable native landscape with development and economic growth.***

2.4 WATERSHED GOALS & OBJECTIVES

The Des Plaines River planning committee generated and prioritized seven (7) watershed goals to address stakeholder issues/concerns. Establishing these watershed goals allowed the planning committee to develop objectives and outcomes for each goal. The goals developed by the planning committee were central to the development of the Action Plan (**Chapter 6**). The goals and objectives reflect watershed conditions, address stakeholder priority issues, consider expected future changes, and meet current and possible future funders' expectations.

Over the period of the planning year, "measurable" indicators were assigned to each goal to help measure future progress toward meeting each goal as the watershed action plan is implemented. The Action Plan contains recommended:

- Programmatic actions that address flooding; water quality; stormwater management and drainage; natural re-sources; and education, outreach, coordination and implementation goals; and
- Site specific actions that recommend best management practices for specific problem locations identified during inventories and assessments.

The goals and objectives are examined in more detail when evaluating the watershed plan's performance and progress by evaluating milestones related to "measurable" indicators for the goals and objectives.

NOTEWORTHY GOALS VS. OBJECTIVES

GOALS:

- **Mini vision statements or targets for the watershed plan.**
- **Are the desired change or outcome you wish to achieve.**
- **Are driven by stakeholder issues and problems identified by the watershed assessment.**
- **Ideally will be clear, concise and measurable.**

OBJECTIVES:

- **Specific, more precise steps needed to attain goals.**
- **Position reached or purpose achieved by some activity by a specific time.**
- **Objective outcomes should be measurable, attainable, relevant, and time-based.**
- **There may be multiple objectives to achieve a goal(s).**

WATERSHED GOAL # 1 WATER QUALITY IMPROVEMENTS

GOAL: Improve water quality and prevent future pollution impacts to streams, lakes, ponds and wetlands within the Des Plaines River Watershed.

OUTCOME: *Overall water quality is improved. Water bodies will fully support their designated uses (are not impaired).*

OBJECTIVES:

a) Develop and implement a watershed monitoring program to collect and assess physical, chemical and biological water quality data on a regular basis.

Indicator: Watershed monitoring program implemented; frequency of data collection

b) Reduce the quantity of road salt (sodium chloride) needed for safe and cost effective winter maintenance to reverse the current trend of rising chloride levels in water bodies.

Indicator: Amount of road salt used

c) Reduce phosphorus loads by:

- using conservation practices on all agricultural fields to reduce soil loss;
- all municipalities and county pass ordinances that restrict the use of lawn fertilizer with phosphorus;
- implementing effective leaf cleanup and composting programs;
- removing phosphorus from wastewater discharges;
- upgrading poorly functioning septic systems; and
- addressing re-suspension of phosphorus in lakes where feasible.

Indicators: Number of municipalities and the county that adopt a phosphorous ordinance

Number of phosphorous discharges from wastewater treatment plants
Number of agricultural BMPs targeting phosphorous implemented
Number of septic systems upgraded

d) Where appropriate, remove or retrofit impoundments, dams and weirs in streams to support fish passage and migration, natural baseflow conditions, and to improve dissolved oxygen levels.

Indicator: Number of dams and impoundments removed or retrofitted

e) Reduce sediment and excessive debris accumulation in surface waters by reducing streambank, shoreline, and construction related erosion throughout the watershed.

Indicators: TSS levels
Linear feet of streambank and shoreline restored

f) Develop, implement, or expand on-going monitoring for all watershed lakes

- Monitor lake levels by installing a staff gauge recording levels weekly.
- Monitor lake inlets for nutrients, sediment and erosion.

Indicator: Watershed monitoring program for lakes implemented; frequency of data collection

g) Reduce/eliminate harmful algae blooms in lakes.

Indicator: Number of algae blooms reported

h) Reduce fecal coliform pollution by regulating septic system construction and maintenance, requiring regular maintenance and enforcement of ordinances requiring proper cleanup and disposal of pet waste.

Indicator: Number of identified sources of fecal coliform that were addressed

i) Reduce the use of coal tar sealants for parking lots and driveways.

Indicator: Amount of polycyclic aromatic hydrocarbons (PAHs) detected in water quality monitoring efforts

j) Prepare pollution prevention plans to address emergency response for potential catastrophic environmental events such as pipeline leaks and flooding.

Indicator: Pollution prevention plan created and distributed

k) Minimize runoff volumes, velocities and pollutants to waterways by utilizing wetlands, natural landscapes and stormwater best management practices as infiltration and pollutant filtration systems.

Indicator: Number of BMPs installed

WATERSHED GOAL #2 REGIONAL GREEN INFRASTRUCTURE & NATURAL RESOURCES

GOAL: Protect, enhance & restore natural resources (soil, water, plant communities, and fish and wildlife) by employing good natural resource management practices and using green infrastructure on public and private properties to maintain, enhance or restore natural hydrology, native plant and wildlife communities, provide buffers for streams, lakes, wetlands and high quality areas and expand

environmental corridors to provide ecological, educational and recreational benefits.

OUTCOME: *Natural resources are protected, establishing a series of interconnected hubs and corridors that work to preserve and enhance the high quality natural areas of the watershed.*

OBJECTIVES:

a) Protect and expand ecological quality of aquatic and terrestrial resources by improving water quality and eradicating invasive species while preserving and protecting threatened and endangered species and ecosystems.

   Indicator: Area of degraded natural communities that remain protected and/or are expanded

b) Restore degraded terrestrial and aquatic (lakes, wetlands and streams) resources using best restoration practices to improve habitat.

   Indicator: Area of degraded natural communities restored

c) Maintain, expand or restore high quality native plant buffers along river, streams, lakes and wetlands.

   Indicator: Area of riparian (native plant) buffers maintained, expanded and restored

d) Preserve, restore and create wetlands areas with a target of a minimum 10% wetland land cover per SMU. (Note: this objective will be revised/updated based on the analysis completed in the WRAPP scheduled for completion in 2017)

   Indicator: Number and acreage of wetlands created and/or restored

e) Identify and preserve natural areas that provide important ecological, environmental education, and paddling recreation such as swimming, hiking, fishing, biking, riding, canoeing and bird watching.

   Indicator: Area of open space identified and preserved for environmental and recreational natural areas

f) Identify and map environmental corridors across community, county and state lines, and trail connections between new and existing parks and forest preserves where appropriate.

   Indicator: Area of open space identified and preserved that provide trail or habitat corridor connections

g) Assess current fish population and reduce or eradicate common carp and other invasive aquatic species.

   Indicator: Number of action plans prepared, and evaluating aquatic recourse trends based on lake assessment reports

h) Develop a APMP for lakes and streams that target the reduction of invasive species and promote native plant diversity.

   Indicator: Number of lake associations and riparian landowners with APMPs

i) Eradicate buckthorn

   Indicator: Area of land maintained by removing invasive species (such as buckthorn).

j) Reintroduction of extirpated native species as water resources or ecosystems improve (such as blanding turtle)

   Indicator: Number of threatened and endangered native species reintroduced into natural habitats

WATERSHED GOAL #3 FLOOD DAMAGE REDUCTION

GOAL: Reduce current flood damage in the Des Plaines River watershed and prevent future flooding from worsening in the watershed and along the Des Plaines River downstream of Lake County.

OUTCOME: *Flood damages are reduced to maximum extent practicable and impacts to residents, businesses, institutions, governments and natural resources in the Des Plaines River watershed are minimal.*

OBJECTIVES:

a) Create additional flood storage at regional wetland restoration or flood storage sites in Illinois and Wisconsin to reduce flooding and prevent downstream erosion.

Indicator: Area of new or restored flood storages sites

b) Reduce existing flood damage and number of flood problem areas through the implementation of flood mitigation projects.

Indicator: Number of flood problem areas in areas with flood mitigation projects implemented

c) Residents protect themselves from the impacts of flood damage by obtaining flood insurance and installing individual property mitigation measures.

Indicators: Number of structures with flood mitigation measures

Number of structures with flood insurance in the 100-year floodplain

d) Use infiltration and evapotranspiration provided by green infrastructure to reduce volume of runoff and flood damage.

Indicator: Number of green infrastructure projects and BMPs installed

e) Identify and install overland flow routes for all detention facilities and flood prone and depressional areas where needed.

Indicator: Mapped overland flow routes

f) Require more specific/stringent maintenance and drainage easement requirements for stormwater features in new developments and re-developments.

Indicator: Amount of stormwater detained from new development or redevelopment

g) Maintain and increase local drainage system capacity to mitigate flood damage and improve resiliency for changing precipitation patterns.

Indicators: Amount of flood storage created

Capacity added to existing systems

h) Remove excessive debris loads in channels to maintain conveyance and reduce streambank erosion.

Indicator: Miles of channel maintained.

i) Support updating of outdated floodplain maps to accurately identify current flood hazard areas.

Indicator: Number of communities with updated FEMA floodplain maps (less than 10 years old)

j) Purchase and remove structures that are chronically flood damaged through the voluntary buyout program.

Indicator: Number of buyouts

k) Reduce the number of flood damage claims from major flood events.

Indicator: Number of claims field each year per community in the watershed

WATERSHED GOAL #4 FUNDING, INSTALLING & MAINTAINING STORMWATER INFRASTRUCTURE

GOAL: Reduce the volume and improve the quality of stormwater runoff by installing appropriate gray or green stormwater infrastructure and improving the condition of existing stormwater infrastructure.

OUTCOME: *Lower stormwater runoff volume and pollution reaching and negatively impacting water bodies and natural resources and causing flood damage.*

OBJECTIVES:

a. Reduce the rate and volume of stormwater runoff from areas that are already developed and new development by minimizing impervious cover and implementing stormwater green infrastructure practices that reduce runoff volumes, velocities and pollutants to waterbodies through infiltration, evapotranspiration and storage of rainwater on-site.

Indicator: Number of developments which maintain pre-development hydrology
Number of stormwater BMPs installed and area treated by a stormwater BMP

b. Expand funding opportunities including alternative funding mechanisms, technical assistance, and maintenance resources for improving stormwater green infrastructure and best management practices.

Indicator: Number of cost-sharing programs and grant funding available

c. Develop standards/guidelines for use of green infrastructure for stormwater management in site planning and design including strategically connecting to off-site green infrastructure.

Indicator: Number of municipalities that have codes that allow or require green infrastructure for stormwater management

d. Increase education and political will to provide funding and technical analysis for improving local and countywide regulations pertaining to impervious surface stormwater runoff and best management practices (BMPs).

Indicator: Number of local, county, and state representatives provided educational outreach materials for improving local and countywide regulations

e. Increase funding committed for in-the-ground stormwater best management projects.

Indicators: Amount of grant funding increased for in-the-ground stormwater best management projects

f. Retrofit and maintain existing stormwater management structures such as detention basins to provide water quality, natural resource and flood prevention benefits and ensure design standards for new basins incorporate multiple benefits.

Indicator: Number of existing stormwater management structures retrofitted
Number of developments using conservation design principles built

g. Clear, repair or replace blocked, damaged and failing culverts, outfall pipes, swales and ditches, and other stormwater conveyance infrastructure to maintain conveyance and reduce erosion.

Indicator: Number of landowners contacting municipalities and Lake County for maintenance needs on water conveyance routes

h. Establish and implement a watershed-wide stream and river maintenance program using the American Fisheries Society standards as guidelines.

Indicator: Number of communities with established stream maintenance programs

i. Design and install stormwater BMPs to capture and treat roadway stormwater runoff.

Indicator: Length of roadway retrofitted or designed with BMPs

j. Identify who is responsible for maintenance activities for stormwater gray/green infrastructure practices.

Indicator: Number of landowners that receive an informational guide on roles and responsibilities for stormwater gray/green infrastructure maintenance

k. Utilize modeling and monitoring to evaluate if design assumptions and performance of stormwater infrastructure are being achieved

Indicator: Results from site inspections performed during the 10 year operations and maintenance period for Illinois EPA 319 grant funded projects

WATERSHED GOAL #5 COMMUNITY & AGENCY COORDINATION

GOAL: Improve coordination, research, and decision-making among public, private, and non-profit entities to help achieve watershed plan goals and objectives.

OUTCOME: *Watershed stakeholders coordinate together and utilize all of their local resources to implement the watershed improvement projects.*

OBJECTIVES:

a) Watershed communities adopt the Des Plaines River Watershed Based Plan.

Indicator: Number of municipalities, counties and natural resource agencies that adopt the Des Plaines River Watershed Plan

b) The DRWW will continue to monitor water quality and develop strategies to address water quality impairments in the Des Plaines River watershed.

Indicator: Watershed water quality monitoring program continues; frequency of data collection

c) Establish a watershed organization or council with funding and support to guide watershed plan implementation, provide technical assistance to watershed stakeholders and coordinate multi-partner projects.

Indicator: Establishment of lead organization with budget and executive committee
Number of projects advanced/undertaken with the supports of the watershed organization

d) Communities will designate a representative and participate in the watershed council.

Indicator: Watershed council has designated an individual or board members to represent the watershed council

e) Land use planning jurisdictions will consider DPR watershed plan recommendations when developing local comprehensive plans and making land use decisions.

Indicator: Number of municipalities implementing watershed site-specific and programmatic actions

f) Strengthen, and better enforce consistent regulations and standards intended to protect and preserve watershed natural resources.

Indicator: Number of communities that have ordinances and programs that protect and preserve watershed natural resource areas

g) Increase citizen scientist monitoring through River Watch and VLM programs.

Indicator: Number of lake and river monitoring events

h) Watershed council annually assesses progress on plan implementation and provides updates to the watershed based plan every 10 years.

Indicator: Number of watershed residents that receive watershed report card

WATERSHED GOAL #6 AGRICULTURE FARMING SYSTEMS

GOAL: Active watershed stakeholder participation in farmland preservation programs and implementation of sustainable agricultural practices that meet the watershed goals and objectives.

OUTCOME: *The plan encourages farmland preservation and sustainable agriculture practices in the watershed.*

OBJECTIVES:

a) Install and expand agricultural best management practices (BMPs), including drainage and tillage, to reduce sediment, chemical and nutrient transport to Des Plaines River water bodies.

Indicator: Number and area of agricultural BMPs installed

b) Create and implement Resource Management Plans for all farms, equestrian facilities and nurseries in the watershed.

Indicator: Number or percent of farms, equestrian facilities and nurseries with resource plans

c) Maintain drain tiles to reduce sediment transport to waterways and investigate opportunities for a demonstration site for end of tile water quality best management practice.

Indicator: Sediment accumulation in channels adjacent to and downstream of row crop farms
Demonstration site established and monitored
Length of drain tile removed

d) Investigate opportunities for a farmland preservation program (Illinois and Wisconsin portions of the watershed may require separate programs), and partner with existing farmland protection groups to share knowledge and provide support.

Indicator: County/municipal adopted farmland preservation program(s)

e) Conserve soils by using erosion control measures on farms and utilizing best farming practices to reduce erosion

Indicator: Acres of cover crops or crop residue left on fall agricultural fields

f) Expand local agricultural production including small scale and local farming to preserve prime farmland (i.e. native plant nurseries and Farm to Table initiative).

Indicator: Track prime farm acres in production or conversely prime farmland rezoned and converted to other uses

WATERSHED GOAL #7 EDUCATION & OUTREACH

GOAL: Provide watershed stakeholders with knowledge, skills and motivation needed to take action on implementing the watershed plan. Watershed stakeholders include (but are not limited to) residents, property owners, property owner associations, government agencies and jurisdictions, and developers.

OUTCOME: *Stakeholders have adequate information and knowledge of resources to implement the watershed plan.*

OBJECTIVES:

a. Educate and provide information and training to riparian landowners on best practices for stream and lake shoreline restoration and maintenance that will reduce erosion and increase water quality.

Indicators: Number of participants in training
Number of landowners that receive information about best practices for stream and lake shoreline restoration and maintenance

b. Conduct a watershed outreach campaign to inform and engage the public about watershed issues, landowner responsibilities and available resources.

Indicators: Watershed outreach campaign established
Number of people reached by outreach campaign

c. Educate local municipalities, landowners, and public works staff on road salt alternatives and application BMPs to minimize the use of road salt by public and private snow removal providers.

Indicators: Number of attendees by sector
Reduction in quantity of road salt applied
Number of municipalities and large parking lot owners that use alternative de-icing products

d. Educate the general public on the importance of watershed health (water quality, flood prevention, soil conservation and agricultural production, green infrastructure, water-based recreation) are to the economy of the communities in the watershed.

Indicator: Number of property owners that receive information about the importance of watershed health

e. Utilize trainings, workshops, public meetings, and stakeholder "word of mouth" to include newsletter, websites, media, campaign, etc…to provide watershed stakeholders opportunities to participate in watershed programs and projects.

Indicators: Number of landowners that receive information about watershed programs and projects
Number of workshop and training attendees
Number of watershed projects implemented

f. Develop and implement a pollution prevention campaign to educate residents on source control and runoff reduction measures that may be used on their properties to reduce/eliminate pollution inputs associated with landscape maintenance and agricultural production.

Indicator: Pollution prevention campaign established

g. Facilitate public training and engage students, lake associations and homeowner associations to volunteer for lake, stream and natural area stewardship and maintenance.

Indicator: Number of lake, stream, and natural area stewardship and maintenance volunteers

h. Promote the use of native plants and the removal of invasive plants by establishing demonstration sites and training.

Indicator: Number of demonstration sites established and trainings held

i. Provide communities with the tools they need to prevent flood damage from worsening by using the "no adverse impact standard" and maintaining floodplain as open space.

Indicators: Number of communities that adopt the "no adverse impact standard"
Acres of floodplain maintained

j. Install signs at each lake to educate residents (lake users) on ways to reduce the spread of aquatic invasive species.

Indicators: Number of signs installed
Results from the lake monitoring efforts